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Date of Application, 28th Feb., 1898

Complete Specification Left, 29th June, 1898—Accepted, 7th Jan., 1899

PROVISIONAL SPECIFICATION.

Improvements in the Sterilization and Purification of Water and other Substances.

I, Emile Arthur Stein, of 122, Rue de la Poste, Scharbeak, Brussels, in the Kingdom of Belgium, Chemist, do hereby declare the nature of this invention to be as follows:—

My invention relates to a novel process for the sterilization and purification of waters and other substances used as beverages and otherwise.

The principle of the invention consists in oxidizing organic impurities by means of oxygen compounds of chlorine, obtained by the decomposition of chlorates by means of acids and especially sulphuric acid, moreover the combustion of the organic matter transposes the oxygen of the water into ozone, and this body re-acts in its turn on the water. In consequence of this phenomenon a very small quantity of the substance suffices to sterilize and purify a large bulk of water. For instance a water which does not contain a large percentage of organic matter, may be sterilized with less than one milligramme of material to the litre. The gas obtained by the decomposition of five milligrammes of potassic chlorate will be sufficient to sterilize and remove any smell from a litre of sewage water. This operation can be effected in various manners. For instance a gas coming from the decomposition of a chlorate by means of sulphuric acid may be passed into water intermixed with air. But the most simple method consists in decomposing the chlorate by means of sulphuric acid in a stoneware retort with three tubulures. The air current then carries the ogygen compounds of chlorine into the water and effects a regular solution thereof. The water when charged with these gases the amount of which is ascertained beforehand, may then be poured into the water to be sterilized, and an agitating apparatus effects the complete intermixture. It is obvious that other means might be used to attain the same result, for instance, in small apparatuses it may be so arranged that the purifying liquid may be pumped at the same time as the water to be purified and in given proportions therewith.

I consider as within my invention the use of the oxygen compounds of chlorine for the purification of water in general, the operative method indicated above being only mentioned by way of example. The said compounds are moreover very active as sterilizing agents and they may also be utilized for sterilizing other matters than drinking waters. For instance they may be used for purifying sewage. Waters from works or factories may also be treated in the same manner. Moreover other various beverages or substances used for food may also be treated.

Dated this 28th day of February 1898.

W. P. THOMPSON & Co.,
322, High Holborn, London, W.C., Patent Agents for the Applicant.

[*Price* 8*d*.]

COMPLETE SPECIFICATION.

Improvements in the Sterilization and Purification of Water and other Substances.

I, Emile Arthur Stein, of 122, Rue de la Poste, Scharbeek, Brussels, in the Kingdom of Belgium, Chemist, do hereby declare the nature of this invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement:—

My invention relates to a novel process for the sterilization and purification of waters and other substances used as beverages and otherwise.

The principle of the invention consists in oxidizing organic impurities by means of oxygen compounds of chlorine, obtained by the decomposition of chlorates by means of acids and especially sulphuric acid, moreover the combustion of the organic matter transposes the oxygen of the water into ozone, and this body re-acts in its turn on the water. In consequence of this phenomenon a very small quantity of the substance suffices to sterilize and purify a large bulk of water. For instance water which does not contain a large percentage of organic matter, may be sterilized with less than one milligramme of material to the litre. The gas obtained by the decomposition of five milligrammes of potassic chlorate will be sufficient to sterilize and remove any smell from a litre of sewage water. This operation can be effected in various ways. For instance, a gas coming from the decomposition of a chlorate by means of sulphuric acid may be passed into water intermixed with air. But the most simple method consists in decomposing the chlorate by treating it with sulphuric acid in a stoneware retort provided with three washing vessels in series, through which the evolved gases pass successively. The current carries the oxygen compounds of chlorine evolved into the water in the vessels aforesaid and effects a regular solution thereof. The water when charged with these gases the amount of which is ascertained beforehand, may then be poured into the water to be sterilized, and an agitating apparatus effects the complete intermixture. It is obvious that other means might be used to attain the same result, for instance, in small apparatuses it may be so arranged that the purifying liquid may be pumped at the same time as the water to be purified and in given proportions therewith.

I consider as within my invention the use of the oxygen compounds of chlorine for the purification of water in general, the operative method indicated above being only mentioned by way of example. The said compounds are moreover very active as sterilizing agents and they may also be utilized for sterilizing other matters than drinking waters. For instance they may be used for purifying sewage. Waters from works or factories may also be treated in the same manner. Moreover other various beverages or substances used for food may also be treated.

Having now particularly described and ascertained the nature of my said invention, and in what manner the same is to be performed, I declare that what I claim is:—

The use of the oxygen compounds of chlorine, obtained by the decomposition of chlorates (and especially peroxide of chlorine) for the sterilization and purification of drinking water and beverages also of waste waters and the like, and for the sterilization of various alimentary substances.

Dated this 29th day of June 1898.

W. P. THOMPSON & Co.,
322, High Holborn, London, W.C., Patent Agents for the Applicant.

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